Faculty of Computer Science and Information Technology

SmartMoney: Smart Mobile Money Manager Application for Student

Nur Irdina Azhar

Bachelor of Computer Science with Honors (Network Computing)
2020

SmartMoney: Smart Mobile Money Manager Application for Student

Nur Irdina Azhar

A thesis submitted

In fulfillment of the requirements for the degree of Bachelor of Computer Science with Honors

Faculty of Computer Science and Information Technology
UNIVERSITI MALAYSIA SARAWAK
2020

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

TITLE: SMARTMONEY: SMART MONEY MOBILE MONEY MANAGER APPLICATION FOR STUDENT

ACADEMIC SESSION: 2019/2020

NUR IRDINA BT AZHAR
(CAPITAL LETTERS)

hereby agree that this Thesis* shall be kept at the Centre for Academic Information Services, Universiti Malaysia Sarawak, subject to the following terms and conditions:

1. The Thesis is solely owned by Universiti Malaysia Sarawak
2. The Centre for Academic Information Services is given full rights to produce copies for educational purposes only
3. The Centre for Academic Information Services is given full rights to do digitization in order to develop local content database
4. The Centre for Academic Information Services is given full rights to produce copies of this Thesis as part of its exchange item program between Higher Learning Institutions [or for the purpose of interlibrary loan between HLI]
5. ** Please tick (√)

☐	CONFIDENTIAL	(Contains classified information bounded by the OFFICIAL SECRETS ACT 1972)
☐	RESTRICTED	(Contains restricted information as dictated by the body or organization where the research was conducted)
☑	UNRESTRICTED	

Validated by

(AUTHOR'S SIGNATURE) (SUPERVISOR'S SIGNATURE)

Permanent Address

LOT 8570. PERMAI 2,
34100 SELAMA,
PERAK.

Date: 8/8/2020 Date: 8/8/2020

Note * Thesis refers to PhD, Master, and Bachelor Degree
** For Confidential or Restricted materials, please attach relevant documents from relevant organizations / authorities

DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

……

Signature

Name: Nur Irdina binti Azhar

Matric No.: 57272

Faculty of Computer Science and Information Technology

Universiti Malaysia Sarawak

Date :20/7/2020

ACKNOWLEDGEMENT

I would like to take this opportunity to those who have contributed directly or indirectly to this guidebook. My sincere gratitude to my supervisor, for the advice and support given during my period of study in Universiti Malaysia Sarawak. Finally, I would like to thank the management of the Universiti Malaysia Sarawak for making it possible for me to complete my study here in Sarawak. Thank you all.

ABSTRACT

The main aim of this project is to develop a mobile application for students Sekolah Menengah Sains Teluk Intan (SEMESTI). Students can pay their foods using debit cards (Bank Rakyat) which is they are going for cashless. However, students have a problem where they cannot trace their balance after they purchased foods from the canteen and school co-op. Due to this, they cannot trace money expenses. This project helps the students to manage and trace money expenses. Thus, this project able to help students to gain their financial skills and knowledge. The expected outcome from this project is the students can trace their money expenses after they used it at the canteen or school cooperative by using the mobile application only. A total of 10 respondent were selected. Data was collected using questionnaire through usability testing and analysed using descriptive statistics (mean and standard deviation). The scores for male and female were (mean=0.2, SD=1.000) and (mean=0.8, SD=2.000) respectively. Besides, this project helps the student to learn how to manage money and save from the app. In addition, it can provide gamification for the students for achieving their saving goals and helps them to be more discipline about the money.

Keywords: mobile application, manage and trace expenses, saving goals, financial management

ABSTRAK

Matlamat utama projek ini adalah untuk menghasilkan aplikasi mudah alih untuk pelajar Sekolah Menengah Sains Teluk Intan (SEMESTI). Pelajar boleh membayar makanan mereka dengan menggunakan kad debit (Bank Rakyat) dimana pembayaran dibuat tanpa perlu mengeluarkan wang. Walaubagaimanapun, pelajar mempunyai masalah di mana mereka tidak dapat mengesan baki wang mereka selepas membeli makanan dari kantin dan koperasi sekolah. Ini disebabkan mereka tidak dapat mengesan dan mengawal perbelanjaan wang yang telah digunakan. Projek ini membantu pelajar mengurus dan mengesan perbelanjaan wang. Tambahan, projek ini dapat membantu pelajar memperoleh kemahiran dan pengetahuan tentang kewangan mereka. Hasil yang diharapkan dari projek ini adalah pelajar dapat merekodkan perbelanjaan wang mereka setelah mereka menggunakannya di kantin atau koperasi sekolah dengan menggunakan aplikasi mudah alih sahaja. Sebanyak 10 responden dipilih. Data dikumpulkan menggunakan soal selidik melalui ujian kebolehgunaan dan dianalisis menggunakan statistik deskriptif (min dan sisihan piawai). Skor untuk lelaki dan wanita masing-masing adalah (min=0.2, SD=1.000) dan (min=0.8, SD=2.000). Selain itu, projek ini membantu pelajar mempelajari cara mengurus wang dan menyimpan daripada aplikasi ini. Juga, boleh memberi peluang kepada para pelajar untuk mencapai matlamat simpanan mereka dan membantu mereka untuk lebih berdisiplin mengenai wang tersebut.

Kata kunci: *aplikasi mudah alih, perbelanjaan, kewangan, pengurusan kewangan*

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

Page

LIST OF ABBREVIATIONS

UNIMAS	Universiti Malaysia Sarawak
SEMESTI	Sekolah Menengah Sains Teluk Intan
ATM	Automated Teller Machine
MoM	Manage on Money
API	Application Programming Interface
APPS	Application
ARCS	Model of Motivation
SDLC	Software Development Lifecycle
SD	Standard Deviation
UML	Unified Modelling Language
CPU	Central Processing Unit
RAM	Random Access Memory
HDD	Hard Disk Drive
SDK	Software Development Kit

CHAPTER 1

INTRODUCTION

1.1 Overview

In this chapter, a brief overview of mobile methodology applications will discuss. The problem, research questions, scope, aims, and objectives will be explain and discuss throughout this chapter. Besides, each stage of the waterfall model will be brief in this chapter. Furthermore, the significance of the project, project schedule, and expected outcome will be explain in detail.

1.2 Background

In the modern era, technological advances have been growing, especially in mobile technology. As a result, the increase of mobile users leads to the rise of mobile applications to the user. So many software developers want to develop a new mobile app to complete the needs of the users and currently in high demand in the industries of technology. A mobile application is a software application invented to run on mobile devices and tablets (Amrit Poudel, 2013).

Besides that, the development of mobile applications has made it even easier and faster for users by providing all the requirements to the user through mobile apps. These applications are commonly distributed through centralised platform-specific application stores, such as Google Play (Android), Apple Store (iOS), and Windows Store (Windows Phone) (Gomez, 2017).

In this project, the development of a mobile application smart money manager able to help students from Sekolah Menengah Sains Teluk Intan (SEMESTI) to manage money

and learn how to save money. This application includes a money manager which the students able to use it for their money saving and help the student how to manage money. This mobile application will be able to allow the parents to track the money that their children have spent every day.

1.3 Problem Statement

SEMESTI's students are going by cashless, where the users can use a debit card to make payment everywhere and anywhere. Nowadays, most people will be going for cashless because they do not have to cash out their money at ATMs. People prefer to use a simple and faster method of payment which is a cashless payment (Semenov, Chernokulsky, & Razmochaeva, 2017). However, there are advantages and disadvantages to using digital cash. Lewis & Perry (2019) found that there might be advantages in handling financial services digitally. There is a few of existing mobile application for money manager and tracking such as Money Manager, Spending Tracker, and My Belanja. Below is the list of objectives for the project:

i. To develop a mobile application for students financial, where the students can trace and manage their money expenses.
ii. To test the effectiveness of a money management application to save money and learn managing money for students.

1.4 Research questions

Below is the list of research questions in the project:

i. How to develop a mobile application with a smart money manager to help the student to manage money well and saving money?

ii. How effective is the money manager in term of user experiences to help students to learn money planning?

1.5 Scope

This project is mainly focus on Form 2 students in Sekolah Menengah Sains Teluk Intan (SEMESTI) as a target user. The students have an average budget for financial from 100 to 200 a month from their parents.

1.6 Aims and Objectives

Below is the list of objectives for the project:

i. To develop a mobile application for students financial, where the students can trace and manage their money expenses.
ii. To test the effectiveness of a money management application to save money and learn managing money for students.

1.7 Brief Methodology

SDLC is a conceptual structure or process that considers the structure of the stages included in the development of an application from its initial feasibility study through to its deployment in the field and maintenance (Ruparelia, 2010). The waterfall model is a methodology that has been use in this project, which is under the Software Development Lifecycle (SDLC) models. Figure 1.1 shows is a Waterfall Model used in developing this project.

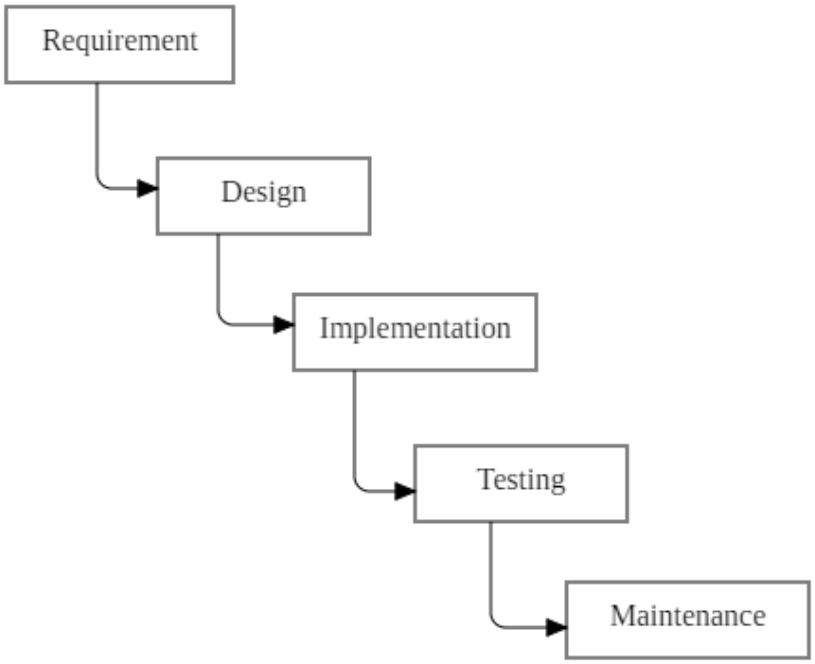

Figure 1.1: Waterfall Model

1.7.1 Requirement

This phase is the base for completing the project and the initiation of the project happens. In this phase, all the hardware, software and user requirements will be need for the project to complete is being list.

List of required hardware to develop the project:

i. Laptop

ii. Mobile phone with an android operating system

List of the required software to develop the project:

i. Android studio

ii. Mockflow for designing the interface

1.7.2 Design

The design phase is where the process of designing a mobile application based on the features of an application need. Moreover, in this phase, interface design will be decide to help in establish overall system architecture.

1.7.3 Implementation

The implementation phase is the design that will create the codes, and a specific design will be develop from the design phase. The function of the overall system requirements, which are call units, will be developed and tested as a unit-testing phase.

1.7.4 Testing

During this phase, the testing progress will be test to make sure all the functionalities will work as expected. This is to make sure the system is examine for any failures and faults in the system.

1.7.5 Maintenance

During this phase, the client will be provide with the maintenance functions that will be use, and the maintenance will occur if there is a problem in the testing phase. In additions, to improve any issue and errors that happened in the previous stage.

1.8 Significance of the Project

There are several significances from the project, such as:

i. This project creates a money manager for the students that have been a problem with their spending.
ii. Students can manage their money well and learn how to manage and to save money.

1.9 Project Schedule

Final Year Project divided into two sections, and it takes about eight months for the overall development. Final Year Project 1 is the first section, which is consists of Introduction, Literature Review, and Methodology or Requirement Analysis and Design is choose for the project. Then, Final Year Project 2 is a second session, which consists of Implementation and Testing, Conclusion and Future Works. In Appendix A, the Gantt chart is provide.

1.10 Expected Outcome

Below is a list of outcomes from the project:

i. A mobile application for Smart Money Manager is to provide an application money manager for students' finances.
ii. A fully functional mobile application that helps students manage their money by using the app only.

1.11 Thesis Outline

The thesis adapt the following structure:

Chapter two presents an overview of mobile applications and money planners are discussed throughout this chapter. The advantages, problems, and reasons for smart money manager mobile applications will explained and discussed. Thus, three similar existing mobile apps will compared in this chapter. In addition, the related work of this proposed system will be discussing more in Section 2.2.

Chapter three provides the methodology used in this project. The waterfall model from the SDLC was used. The five phases of the waterfall model were described in detail—the description of the essential requirement in hardware and software. The results of the

questionnaires have been discussed. The UML use case diagram, class diagram, flowchart, and activity diagram are used to illustrate the design and flow of the project. Lastly, the proposed interfaces of the application are provided to visualise the product of the project.

Chapter four provides the list of software to develop a Smart Money mobile application is discussed. The design of the user interface of the Smart Money mobile application are reported and explained.

Chapter five explains the testing and evaluation of the Smart Money mobile application. The functional test was carried out to test its function in the Smart Money mobile application works as intended. Likewise, the non-functional test focused on the usability testing of the application. The effectiveness of the application to save money and learn managing money for students was measured. The questionnaire was distributed to collect the feedback from the students and teachers regarding their opinion on the effectiveness of the application.

Chapter six explains the Smart Money app managed to meet the aim and objectives by using the mobile application technology. Smart Money used the concept of saving-style and integrated it with money management content. The students reported that they were enjoyed using the application. In addition, the concept of saving-style can attract the student's attention and encourage them to manage money.

1.12 Conclusion

Chapter 1 provides brief details about the proposed project. This proposed project will develop a mobile application for Smart Money Manager to provide the students SEMESTI with the fun and ease of use of the mobile app.